on.

MR. MORIARTY: My objection on July 11th, 2011, is that this is irrelevant and by the time of trial I expect that this will not come in under the Daubert challenge that we are going to make.

MS. DONAHUE: Join. Same objection, same reasons.

MR. MORIARTY: And I may have other bases, so I don't waive the argument on those.

BY MR. ERNST:

Q. Doctor, the 3.6 testing level that you've done is true and accurate; true?

A. According to the records I reviewed, that is the level that we -- we measured in the sample.

MR. MORIARTY: Objection. Move to strike as repetitive.

BY MR. ERNST:

Q. From a clinical standpoint, it is generally accepted -- and I believe you testified to this -- that in a living individual, digoxin therapeutic levels range from 0.5 to 0.20, and there are occasions where you've said it goes as high as 2.5.

MS. DONAHUE: Objection.

MR. MORIARTY: Objection.

THE WITNESS: The therapeutic -- the therapeutic range is between 0.5 and 2.0 nanograms per mL. In some references it's up to 2.5 nanograms per mL.

In the older literature -- and this goes back decades now -- the level -- the therapeutic level is actually up to 4.0 nanograms per mL.

BY MR. ERNST:

Q. Now, are you aware that there was a recall of Digitek?

A. I was aware of that.

Q. And how did you become aware of the recall of -- for Digitek?

MR. MORIARTY: Objection.

MS. DONAHUE: Join.

THE WITNESS: I found out through a discussion with NMS that we were doing sampling of tablets from various manufacturers in which there was a recall.

MS. DONAHUE: Objection. Move to strike.

BY MR. ERNST:

Q. And did you ever sample any medication provided to you by Actavis?

A. When you talk -- when you say "you," me personally?

Q. The firm, NMS.

A. I don't -- well, other than what was provided in this case, which I don't know the actual source of the medication, I can't answer that question because I don't know that.

Q. Do you know if any work was done testing Digitek tablets by Mylan?

A. I don't know that.

MR. ERNST: Our next in order, is it 20?

COURT REPORTER: Yes.

(Exhibit Barbieri-20 was marked for identification.)

BY MR. ERNST:

Q. I'm going to mark as Exhibit 20 a two-page document that are referred to as a recall.

Do you see that?

MR. MORIARTY: May I see it, please?

THE WITNESS: Yes.

MR. MORIARTY: (Attorney reviews document.)

BY MR. ERNST:

Q. Do you see that?

A. I have it.

Q. And do you see that according to Exhibit 20 that the Digitek tablets, 0.25, were recalled as a, quote, precaution because the tablets may be double the appropriate thickness and could contain twice the approved level of active ingredient?

Do you see that?

MS. DONAHUE: Objection.

MR. MORIARTY: Objection.

THE WITNESS: I see that statement.

BY MR. ERNST:

Q. That is your understanding of why Digitek was recalled.

MS. DONAHUE: Objection.

MR. MORIARTY: Objection.

THE WITNESS: No.

BY MR. ERNST:

Q. What is your understanding of why Digitek was recalled?

A. I don't know. I just know that Digitek or products of generic -- excuse me -- products of generic digoxin, there was a recall involved and that NMS was doing some testing on some of those tablets.

The reason, I do not know. And I did not know at that time. And I do not know today.

Q. I want you to assume a couple of things here. I'm going to ask you some more questions.

I want you to assume that the coroner, Dr. Mason, sliced and cut the axillary vein of the arm and grabbed the arm by the wrist and ran his hand down the arm, squeezing the blood out of the arm for his test.

If you assume that is true, would that be peripheral blood?

MR. MORIARTY: Objection.

MS. DONAHUE: Objection.

THE WITNESS: That would be considered a peripheral blood sample.

BY MR. ERNST:

Q. And is it your understanding that peripheral blood samples have significantly less postmortem redistribution than heart samples?

MR. MORIARTY: Objection.

MS. DONAHUE: Objection.

THE WITNESS: For digoxin?

BY MR. ERNST:

Q. Yes.

A. Yes.

Q. Now, I want you to assume that Mr. McCornack was 45 years old, that he was taking

digoxin through a prescribed Digitek, and that his steady state was 1.6. Okay?

A. Uh-huh.

Q. Is that a yes?

A. That's a yes.

Q. Now --

A. And his last test was done, again, in 2007, you said?

Q. Eleven months prior.

A. Okay.

Q. But his history was consistent and had been consistent at that blood level at or near for ten years.

A. Okay.

Q. And I want you to assume that he then ingested one or more tablets in the days -- day immediately before his death of a double strength tablet of Digitek.

A. We're assuming it's a double strength? That's what you want me to assume?

Q. Assuming. Assuming.

A. Okay.

Q. Would his postmortem blood level -- or is a postmortem blood level of 3.6 consistent with that?

MS. DONAHUE: Objection.

MR. MORIARTY: Objection.

THE WITNESS: It may be, but digoxin kinetics in terms of blood levels are not linear. So that just by doubling the dose does not mean that you're going to double the circulating blood level in a living person.

BY MR. ERNST:

Q. True.

My question -- that's what your testimony is. But my question is, is it consistent?

In other words, if you assume those facts to be true, that he had been stable at 1.6 and he's exposed to double strength tablets, that, in fact, a blood -- a postmortem sample of 3.6 would be consistent with that?

A. It's possible but --

MS. DONAHUE: Objection.

THE WITNESS: -- it's not -- it's not definitive.

MR. MORIARTY: Objection. Motion to strike.

BY MR. ERNST:

Q. It's not inconsistent, is it, Doctor?

MS. DONAHUE: Objection.

MR. MORIARTY: Objection.

THE WITNESS: I'd have to give the same answer.

BY MR. ERNST:

Q. Now, NMS usually runs tests if asked to do it for digoxin; correct?

MS. DONAHUE: Objection.

THE WITNESS: Yes.

BY MR. ERNST:

Q. And the reason they run that test is why?

A. The purpose of it is for -- well, there are various purposes. One of them is for digoxin toxicity on biological samples.

Another purpose of the test is to help agencies or clients who are producing standards of digoxin for sale to verify their concentration.

It could be for various other types of forensic purposes.

Q. To your knowledge, has NMS ever tested any of Actavis' drugs before the recall?

A. I don't know the answer to that. I can't answer that.

Q. Who would know?

A. Probably somebody in the R & D group.

Matt McMullin would probably be the best one to answer that question.

Q. Now, if I go back and ask you a couple of more hypothetical questions -- well, first of all, let's go back and talk about the literature.

Counsel has asked you a whole host of questions about literature. He's given you 19 different articles. And many of the articles are about not digoxin, but other drugs; true?

A. Yes.

MS. DONAHUE: Objection.

BY MR. ERNST:

Q. And, in fact, many of the articles -- and you were asked to pull out a particular sentence here or there -- some had to do with the studies of children.

A. There was one that I saw, yes. I think that was the Koren article.

Q. And some of them -- some of the specific items that were pulled out you might agree with.

A. Yes.

Q. And some you disagreed with.

A. Yes.

Q. What you can say is that the blood level that you tested Mr. McCornack for at the time you were

requested to do so, the level came back at 3.6.

A. That's correct.

Q. And the therapeutic, generally accepted value in the United States today is 0.5 to 2.0.

MS. DONAHUE: Objection.

BY MR. ERNST:

Q. Is that accurate?

A. In antemortem, plasma, or serum samples, yes.

Q. Yes.

Now, I want to talk about peripheral blood, and you mentioned being able to ballpark whether or not there's a great deal or not much of postmortem redistribution with peripheral blood.

MS. DONAHUE: Objection.

BY MR. ERNST:

Q. Do you have any thoughts on postmortem redistribution of peripheral blood?

MR. MORIARTY: Objection.

MS. DONAHUE: Objection.

THE WITNESS: For digoxin specifically?

BY MR. ERNST:

Q. Yes. Yes.

A. There is postmortem redistribution associated with peripheral blood for digoxin.

Q. It is much less than around the heart.
MS. DONAHUE: Objection.
MR. MORIARTY: Objection.
THE WITNESS: Absolutely.
And, of course, any postmortem redistribution is time dependent as well.
BY MR. ERNST:
Q. Now, when you say "time dependent," in other words, you want the sample taken as promptly as you can after death.
A. Yes.
Q. Now, you're aware how coroners' offices work across the United States.
A. Many of them.
Q. Sometimes you can get three days, sometimes you can get as late as I think you testified ten days.
MS. DONAHUE: Objection.
THE WITNESS: It's possible -- I think I said a week, but it's possible, yes.
BY MR. ERNST:
Q. Now, in this particular case, having marked Exhibit 20, if you assume that the recall came out May 2nd, 2008, that would have been some five weeks after the death of Mr. McCornack.

A. Okay.
Q. True?
A. If the calculation is correct, okay.
Q. Now --
A. That's not when the sample was taken. That's when the recall came out after his death.
Q. Right.
A. Okay.
Q. As a scientist, if you had known about a recall, you would have wanted to do a host more tests; right?
MR. MORIARTY: Objection.
MS. DONAHUE: Objection.
THE WITNESS: No. We're not -- we're not in the business of testing products for recalls. We're in the business of testing requests for a particular compound for a client for whatever purpose they deem appropriate.
BY MR. ERNST:
Q. So today, at -- in your position, what you can testify about is that the blood level of 3.6 is accurate as far as the testing procedure that you utilized; true?
A. Yes.
MR. MORIARTY: Objection. Repetitive

times five.
BY MR. ERNST:
Q. And beyond that, beyond that, if you were to be asked to render an opinion assuming that he was 45, his kidney functions were normal, his weight was 200 pounds, he had been stable for ten years on Digitek at or about the 1.6 level, that he had been taking Digitek twice per day, once in the morning, once in the evening, that the taking of his medication was in an appropriate and compliant fashion, that he died approximately four and a half to six and a half hours after ingesting his last Digitek tablet, that the autopsy was done on March 26th, 2008, at 7:30 a.m., that he died March 23rd at 12:52 a.m., that the blood was taken from a peripheral vein, that it was properly taken from a peripheral vein, a blood level of 3.6 is consistent with digoxin toxicity.
MS. DONAHUE: Objection.
MR. MORIARTY: Objection. Asked and answered.
THE WITNESS: And I think I stated previously, it's possible --
BY MR. ERNST:
Q. All right.
A. -- but not necessarily scientifically

always correct.

Q. You would defer to the coroner and you would defer to his treating physicians and you would defer to the people that had a clinical history of him; true?

MR. MORIARTY: Objection.

MS. DONAHUE: Objection.

THE WITNESS: In terms of what? The level?

BY MR. ERNST:

Q. In terms of his medical history, the level and combining all of the clinical symptomatology and material that is available to a person viewing the history and the testing of Mr. McCornack.

MR. MORIARTY: Objection.

MS. DONAHUE: Objection.

THE WITNESS: In terms of what decision, his cause of death?

What are you -- I'm agreeing to what? What's the fact?

BY MR. ERNST:

Q. You are -- you would defer any opinion as to the cause of death to a physician.

MR. MORIARTY: Objection.

MS. DONAHUE: Objection.

THE WITNESS: That had all those -- that information?

BY MR. ERNST:

Q. Yes.

A. I would.

MR. MORIARTY: Don --

VIDEO OPERATOR: Two-minute warning. Two minutes.

MR. ERNST: We'll change the tape.

VIDEO OPERATOR: We are going off the record at 1:59.

(A recess was taken from 1:59 to 2:18 p.m.)

VIDEO OPERATOR: We're back on the record at 2:18.

You may continue.

BY MR. ERNST:

Q. Doctor, as long as you've been at NMS Laboratories there have been occasional requests for tests of digoxin postmortem; true?

A. Yes.

Q. And digoxin has a very narrow therapeutic range.

A. Yes.

Q. And while digoxin can help people, it

can also kill people.

A. Yes.

MR. MORIARTY: Objection.

BY MR. ERNST:

Q. And if there's a sudden increase in the level of digoxin to a patient that has a stable level, assuming 1.6 is his therapeutic steady-state level, a sudden increase in digoxin could have an effect of sudden death.

MS. DONAHUE: Objection.

MR. MORIARTY: Objection.

THE WITNESS: It's a possibility.

BY MR. ERNST:

Q. And, in fact, sudden death is an effect that digoxin toxicity causes based on your training and experience.

MS. DONAHUE: Objection.

THE WITNESS: That's one of the toxicities listed.

BY MR. ERNST:

Q. Because they've made an objection, please state for me the toxic results that one would expect to see, and the range, if there is digoxin toxicity.

MS. DONAHUE: Objection.

THE WITNESS: You mean a list of the toxic effects --

BY MR. ERNST:

Q. Yeah. Yeah.

One of them is sudden death.

A. Well --

MR. MORIARTY: Objection.

THE WITNESS: -- you can start out with the patient may experience nausea and vomiting.

BY MR. ERNST:

Q. That doesn't happen all the time, does it?

A. None of the --

MS. DONAHUE: Objection.

THE WITNESS: -- none of the things I'm going to mention happens all the time.

BY MR. ERNST:

Q. Okay. Let's just mention those things, the range, please.

A. There's -- patient-to-patient variability is very broad with a drug like digoxin. But some of the things that can happen: Nausea and vomiting can occur. There's a sudden change in vision, yellow halos may start to appear in the eyes.

In terms of the more serious toxicities,

the patient may start to get peripheral ventricular arrhythmias. They may throw an arrhythmia from the atria, so you have an atrial tachycardia that occurs.

Q. What does that mean --

A. That means --

Q. -- to a layperson?

A. That means that the atria, which is the top of the heart, begins to beat abnormally. The ventricle is still beating normally.

Atrial tachycardia or paroxysmal, it's called, atrial tachycardia, which means it can occur suddenly, can then -- if not treated and handled, can then generate ventricular arrhythmias so that the ventricles are beating in an abnormal fashion. That's more life threatening.

You can end up with ventricular tachycardia, which means an increasing heart rate, going to ventricular fibrillation, which means that the muscle is not beating and pumping blood, it's just -- it's just kind of squirming around, and then you could have sudden death from stoppage of heart beating.

So all of these are progressive events that can occur as digoxin toxicity occurs in the heart.

MS. DONAHUE: Objection. Move to strike.

BY MR. ERNST:

Q. If a person is sleeping and took more digoxin -- ingested more digoxin than was normally taken, could ventricular fibrillation occur while one is asleep?

MR. MORIARTY: Objection.

MS. DONAHUE: Objection.

THE WITNESS: Yes.

BY MR. ERNST:

Q. What happens in that case?

A. Ventricular fibrillation?

Q. Yes.

A. The heart is not --

MS. DONAHUE: Objection.

THE WITNESS: The heart is not pumping blood.

BY MR. ERNST:

Q. A person goes to sleep and just doesn't wake up?

A. Well, the heart is not pumping blood and so they may -- they may awaken gasping for breath because they're not getting oxygen, or they may die suddenly in their sleep. Again, variability depending

upon the person.

Q. But one of the side effects of digoxin toxicity would be a person waking up from sleep or gasping for breath.

A. That's --

MS. DONAHUE: Objection.

THE WITNESS: -- that is possible.

BY MR. ERNST:

Q. It's also possible that sudden death could occur.

MS. DONAHUE: Objection.

MR. MORIARTY: Objection.

THE WITNESS: That's possible.

BY MR. ERNST:

Q. It's also possible that a person could become -- vomiting -- start vomiting, nauseous.

A. Yes.

MS. DONAHUE: Objection.

BY MR. ERNST:

Q. And is it -- I think you testified that any one of these symptoms could occur in the case of digoxin toxicity.

MR. MORIARTY: Objection.

MS. DONAHUE: Objection.

THE WITNESS: All are possible and any

or all could occur.
BY MR. ERNST:
Q. Now, how does sudden death occur in a case of digoxin toxicity?
MR. MORIARTY: Objection.
THE WITNESS: Well, it's basically really not sudden death because you go through this pattern of paroxysmal atrial tachycardia, ventricular tachycardia, ventricular fibrillation means that the heart stops, but the patient is not aware of that.
So they present as though they die suddenly, but actually all of those things probably occurred. The patient just doesn't realize that the -- when the atria are beating quickly, you don't feel it.
Ventricular tachycardia you tend to feel. But if they're not sensitive to it, they may not realize it. And so it progresses to a point where the heart stops beating.
MS. DONAHUE: Objection. Move to strike.
BY MR. ERNST:
Q. Now, you have just testified as the basis -- on the basis of a toxicologist; true?
A. Yes.

Q. And you feel comfortable and adequate to render those opinions.

A. They're not opinions, they're facts in terms of the effects of digoxin.

Q. From what I hear you saying, if a person who was fatigued or is sweating, would that be a side effect that one would expect?

MR. MORIARTY: Objection.

MS. DONAHUE: Objection.

THE WITNESS: That's not common.

BY MR. ERNST:

Q. If one experienced digoxin toxicity, you have mentioned a host of things. I'll list them: vomiting, change in vision, yellow halos, the ventricular fibrillation of which they would not be aware of, and sudden death.

A. Yes.

Q. Now, if a person went to bed and had digoxin toxicity, they might just die or they might be gasping for breath. That's one of the possibilities; true?

A. Yes.

MS. DONAHUE: Objection.

MR. MORIARTY: Objection.

THE WITNESS: It's possible.

And they may survive these.
BY MR. ERNST:
Q. And they may die.
MS. DONAHUE: Objection.
THE WITNESS: Either way.
BY MR. ERNST:
Q. Is that one of the reasons that NMS performs tests on postmortem blood samples looking for digoxin toxicity?
A. No.
Q. NMS performs tests postmortem because they are asked to do so?
A. Yes.
Q. And they are asked to do so by coroners from across the United States.
A. By coroners, medical examiners, police agencies, district attorneys, drug companies, lab -- other laboratories to verify their results. There are many reasons, many types of clients.
Q. When you get a request to test for digoxin in postmortem blood, you don't ask why, you just perform the test.
A. Yes.
Q. And in this case, Exhibit 8 are the results of that test that you were asked to perform.

A. Yes.

Q. And I take it that Exhibit 8 and the results of a digoxin test are what you as a toxicologist would expect coroners and treating doctors to rely upon as one factor in an overall picture in rendering an opinion.

MR. MORIARTY: Objection.

MS. DONAHUE: Objection.

THE WITNESS: I would agree. That's information like any other type of information in a particular case.

BY MR. ERNST:

Q. Doctor, to you as a toxicologist, that 3.6 number is relevant, isn't it, to you?

A. Well, as I said before, it's not insignificant.

Any -- any digoxin concentration is not insignificant. And a 3.6 again is not insignificant.

So it's something to look at and say, here we have a digoxin, a confirmed identification, and we have a quantification.

Q. In fact, you would expect that another physician either treating, or a coroner, would take that number and factor it into his or her opinion to determine a cause of death.

MR. MORIARTY: Objection.

THE WITNESS: Well, we may expect that. We don't know if that happens.

BY MR. ERNST:

Q. Right.

You just produce the number.

A. We produce the number. I mean, we would -- we would like to say that, you know, everybody at the other end understands what we're doing, what that number means, but we don't know. Many times we don't know.

Q. Now, you have testified about the peripheral blood and how important it is to you for peripheral blood as opposed to heart blood.

A. Okay.

Q. And if I were to describe for you how the coroner took the blood in this case, and by his own testimony stated, Normally you grab the arm by the wrist and run your hand down the arm and squeeze the juice out of there, that would be peripheral blood sample; true?

A. And I answered that question before. I would consider that, as that description would be, peripheral blood.

Q. Now, the fact that a coroner has

determined that there is -- based upon all of the records that were reviewed, all of the previous tests that were done for digoxin, a review of the recall notice, all of those materials, you would defer to the coroner and the treating physicians for their opinions as to the cause of death.

MR. MORIARTY: Objection.

THE WITNESS: Well, I'm not really deferring because I'm not giving an opinion. I mean, I wouldn't question that opinion because they have that information that we don't have or I don't have in this case or other cases.

So it's really not deferring. It's allowing them to do their job.

BY MR. ERNST:

Q. And based on your training and experience, the person whose job to determine the cause of death is the coroner?

A. The coroner, the medical examiner in the particular case, that's correct.

Q. Now, I want to talk for a moment, if I can, about some of the literature that has been presented to you today. There's been a whole host of things.

You were asked specific questions about

a sentence here or there; true?

A. Yes.

MR. MORIARTY: Objection.

MS. DONAHUE: Objection.

MR. MORIARTY: Asked and answered.

BY MR. ERNST:

Q. And after all of that questioning that was done by Mr. Moriarty, the number that you have, 3.6, that was referred to the coroner is a number that you feel is accurate.

MR. MORIARTY: Objection. Asked and answered --

MS. DONAHUE: Objection. Asked and answered.

MR. MORIARTY: -- six times.

THE WITNESS: Yes.

BY MR. ERNST:

Q. And it is something that you would expect -- despite what all of this information and all of the questioning to you about whether or not postmortem blood can or cannot be determined to a specific level previously, it is a factor that you as a toxicologist would consider if you had all of the information and were asked to render an opinion.

MR. MORIARTY: Objection.

MS. DONAHUE: Objection.

THE WITNESS: I would.

BY MR. ERNST:

Q. As a toxicologist, would it be important to you to know that this particular patient, Dan McCornack, had had a consistent level between 1.5 and 1.6 for the previous ten years?

MS. DONAHUE: Objection.

MR. MORIARTY: Objection.

THE WITNESS: It's information, but, of course, it's not in any way information that is applicable to what happened months later.

It's part of the medical history that we look at and we would consider, but not in terms of acting upon or making opinion as to what this number means or refers to in the case.

BY MR. ERNST:

Q. Going back to Mr. McCornack and his blood level, if I were to ask you to assume that Mr. McCornack had purchased Digitek tablets that were recalled after his death and that he had properly taken Digitek tablets that were recalled after his death in the 0.25 milligram range, that he had appropriately taken those tablets and had been exposed to double strength tablets and had ingested them,

would a blood level postmortem of 3.6 be consistent with ingesting double strength tablets?

MR. MORIARTY: Objection.

MS. DONAHUE: Objection.

THE WITNESS: And I think I answered the question before, and I'll answer it again, it's possible.

BY MR. ERNST:

Q. Doctor --

MR. ERNST: I'd just like to go off the record for a moment.

VIDEO OPERATOR: We're going off the record at 2:34.

(Discussion off the record.)

VIDEO OPERATOR: We're back on the record at 2:37.

BY MR. ERNST:

Q. Before I asked you these questions, Mr. Moriarty asked you a whole host of questions on 20 different items in the literature.

Have any of those items changed or modified your thought process or what you've just testified to in any way?

A. No.

MS. DONAHUE: Objection.

MR. ERNST: No other questions.

MR. MORIARTY: Do you want to ask your one question?

MS. DONAHUE: No, you can go ahead.

EXAMINATION

BY MR. MORIARTY:

Q. Okay. Mr. Ernst started his examination by talking to you about these discussions about the scope of your anticipated testimony; right?

A. Yes.

Q. All of those discussions took place after May 15th; right?

A. Yes.

Q. All those discussions took place after the ball got going on scheduling this deposition when we first started talking about it in June; correct?

A. Well, the first discussion was on May 27th. I don't think we scheduled this deposition until after that.

Q. No, but the first discussions that you had with Mr. Ernst about the scope of your testimony and the opinions you would render or not took place much later; correct?

A. It took place much later, but that was before we actually scheduled.

Q. Right.
A. Yes.
Q. Mr. Ernst asked you a hypothetical, and I counted at least 19 assumptions that he wanted you to make.
Do you remember that long hypothetical?
A. It was a long one.
Q. All right. You don't know whether -- how many of those facts are true, do you?
A. No, I don't.
Q. Do you know anything at all about Dan McCornack's underlying cardiac condition?
A. Only from what Dr. -- the doctor put on the test requisition form, that he had some cardiac problems.
Q. Are you a -- in a position to testify about the degree to which Dan McCornack's heart conditions increased the risk of sudden cardiac death in him?
A. No, I'm not.
Q. Did you notice that Mr. Ernst's hypothetical asked you nothing about diltiazem?
A. Yes, that's true.
Q. That's a pretty significant fact in this case, isn't it?

A. It's a significant fact.
Q. Do you know anything about the medical significance of a recall --
A. Not --
Q. -- a product recall?
A. No, not specifically.
Q. Do you know anything about the legal significance of a product recall?
A. Again, not the legal issues, but I know it's not good.
Q. Do you know what FDA said in its -- on its website after this recall about the prospects of there being defective tablets harming patients?
A. No, I have no information.
Q. Do you take FDA recall notices into account in your typical daily practice as a forensic toxicologist?
A. No.
Q. And of the recalled tablets, the six that your company tested, they were all within the specs, weren't they?
MR. ERNST: Objection.
THE WITNESS: Yes.
BY MR. MORIARTY:
Q. And the 18th item in Mr. Ernst's

hypothetical, by my count, was something about the coroner changing his original autopsy diagnosis to reflect death because of digoxin toxicity.

Do you remember him saying that?

A. I do.

Q. And do you remember telling me several hours ago that knowing what you know about the circumstances surrounding this, you would not have advised him to change his opinion based on this 3.6?

A. Yes.

MR. ERNST: Object -- objection. Incomplete.

BY MR. MORIARTY:

Q. Anything change your mind on that in the last hour?

MR. ERNST: Object -- objection.

THE WITNESS: No.

BY MR. MORIARTY:

Q. He then asked you some -- Mr. Ernst asked you some hypotheticals about a 1.6 steady state. I want to ask you about that.

Would you want to know how often Mr. McCornack had been tested over the years before deciding whether 1.6 was a steady state?

A. That would be important information.

Q. The fewer the times he was tested over the years, the less likely you would be to say that 1.6 was his steady state; right?

A. Well, each -- each test, the further apart they were, it would have less significance in terms of actually being a steady state.

Q. And I think you said the 1.6 from May of 2007 would not apply to his steady state in March of 2008; right?

A. That's correct.

Q. Do you still agree with that?

A. Yes, I do.

Q. So to assume that he was steady state 1.6 is a poor assumption; correct?

MR. ERNST: Objection.

THE WITNESS: Based on the way it was presented, it really has no significance to what happened around March 2008.

BY MR. MORIARTY:

Q. Okay. Now, Mr. Ernst was talking about my use of the literature.

There is no one definitive medical article about postmortem analysis of digoxin; correct?

A. Correct.

Q. These things unfold over time as people

research and come to more understanding; is that right?

A. That's how science progresses, yes.

Q. And so you as a scientist -- and you've been doing this how many years?

A. Well, I've been a forensics toxicologist for 13, but I've been doing pharmacology for 35.

Q. All right. So slowly over time you add more articles and you add more information because the science evolves; correct?

A. Yes.

Q. All right. And you try to get as much of those pieces together so that you can figure out what that consensus and the weight of authority are today; right?

A. Yes.

Q. Now, you've never diagnosed anybody with digoxin toxicity in a clinical setting; correct?

A. No, I have not.

Q. You can't do that; right?

A. No.

MR. ERNST: He can't do that.

Is that your testimony?

MR. MORIARTY: That's what I just said.

BY MR. MORIARTY:

Q. But let me ask you about some of the questions that Mr. Ernst asked you about, the signs and symptoms of digoxin toxicity.

From your knowledge of the body of literature on digoxin and toxicity from digoxin, is it unlikely that someone will skip all the prodromal signs and symptoms and go straight to sudden cardiac death?

MR. ERNST: Objection. No foundation.

THE WITNESS: It's unlikely.

BY MR. MORIARTY:

Q. And Mr. Ernst was asking you about what the coroner and some of these other doctors from California should do with this 3.6 result.

Do you think they should interpret this 3.6 consistent with the science and the literature?

MR. ERNST: Objection. It's argumentative.

THE WITNESS: I would hope that they would.

BY MR. MORIARTY:

Q. And if the coroner was not a specialist in postmortem toxicology, especially regarding digoxin, would you expect them to either consult with a toxicologist or read some literature about the

subject?

MR. ERNST: Objection.

BY MR. MORIARTY:

Q. Before coming to some interpretive conclusion regarding this number?

MR. ERNST: Objection.

THE WITNESS: A part of our service is to be available for consultation and discussion on any case.

And so, yes, I would expect them to either consult with us or consult with somebody else about something that they're unfamiliar with before making a decision.

BY MR. MORIARTY:

Q. Yeah. If, for example, they didn't feel like consulting you because you're all the way across the country, they could consult one of the local toxicologists with whom they have an affiliation.

MR. ERNST: Objection.

THE WITNESS: Of course.

BY MR. MORIARTY:

Q. And would you want them to put more weight on this postmortem level of 3.6 than reasonable science would support?

MR. ERNST: Objection.

THE WITNESS: Again, I would leave that up to them. I wouldn't want them to put any weight on anything unless they have researched it and understand it completely.

BY MR. MORIARTY:

Q. I'm asking whether you would want them to put more weight on it than the science supports.

MR. ERNST: Objection.

THE WITNESS: Oh, no, I would not.

BY MR. MORIARTY:

Q. All right. And I think the reason for that, if I may be so bold, after having read this literature and gone over some of it with you, is that the fear is that there will be a misinterpretation of the data and actually a wrong conclusion about the cause of death if you put too much weight on a postmortem blood digoxin level.

MR. ERNST: Objection.

BY MR. MORIARTY:

Q. Is that right?

MR. ERNST: Objection.

THE WITNESS: That would be a reasonable statement.

MR. MORIARTY: Thank you. I have nothing else.

EXAMINATION

BY MS. DONAHUE:

Q. I just have two questions, Doctor.

You testified that it was Dr. Mason that was the one who requested you to run the blood test on the -- for digoxin; right?

A. Well, it was the -- it was the office. I think -- I think the notes say Sergeant Burt was actually the phone contact who made the -- made the call, but it probably came from Dr. Mason.

Q. And did anyone in this case, including Mr. Ernst, tell you that Dr. Mason had been retained or had been sent a letter retaining him as an expert in this case between the time of his first report and the time of his supplemental amended report?

A. I have no --

MR. ERNST: Objection.

THE WITNESS: I have no knowledge of that.

BY MS. DONAHUE:

Q. You said that you are aware of how coroners' offices -- most coroners' offices generally work across the United States?

A. Well, I don't know if I said -- if I said most, many.

Q. Some.
A. Yes.
Q. Have you ever heard of a situation where a coroner changed his opinion re cause of death subsequent to being retained as an expert?
MR. ERNST: Objection.
THE WITNESS: I'm sure it happened. I can't think of a specific instance.
BY MS. DONAHUE:
Q. You've never had that experience working with a coroner, have you?
A. Not that I can recall, no.
MS. DONAHUE: That's all I have. Thank you.

EXAMINATION

BY MR. ERNST:
Q. Doctor, you're retained on occasion; right?
A. Yes.
Q. And when you're retained on occasion, does it affect what you do or say?
A. Hopefully not. Hopefully I take the science and, you know, the conclusions come from the science, whether it's a plaintiff or defendant.
I hope that, you know, I would give

them, either side that would hire me, the same report based on what I interpret.

Q. And when we spoke on the phone after we sort of cleared the air, I asked you to be able to testify about the testing procedure that you've done, the 3.6, and what it would mean to you; true?

A. Yes.

Q. And after all of the testimony here and all of the statements that are made, the 3.6 blood level is important to you as a toxicologist because it is a factor that would be considered in the overall clinical picture of a cause of death; true?

MR. MORIARTY: Objection.

MS. DONAHUE: Objection.

THE WITNESS: Any drug that we have listed on a report, whether it's a low level or a high level, or even the presence of a compound, should be a factor to be considered.

So the answer to your question would be yes.

BY MR. ERNST:

Q. There were some questions mentioned about diltiazem. And the diltiazem issue in your notes specifically states that regarding fatalities, postmortem blood concentrations range from 6,700 to

33,000.

Do you see that?

A. Yes.

Q. And when you look at the diltiazem level here, it's 630 nanograms.

A. Yes.

Q. It's not anywhere near that toxic level, is it?

A. No, it's not.

MR. ERNST: That's all I have.

MR. MORIARTY: May I see that, please.

(Attorney reviews document.)

EXAMINATION

BY MR. MORIARTY:

Q. Is there a universally known range of fatal numbers for diltiazem?

A. No.

Q. So it is theoretically possible that 630 nanograms per milliliter could be fatal.

MR. ERNST: Objection.

BY MR. MORIARTY:

Q. In some case; right?

MR. ERNST: Objection.

THE WITNESS: Well, I guess it's theoretically possible. That would be highly

unlikely.

BY MR. MORIARTY:

Q. Okay. The fact is that it's three times the therapeutic level in the living, right, in this case?

A. If that was -- if that was an antemortem specimen, it would be three times.

Q. Yeah.

A. But, again, if you notice, we have a blood plasma ratio of about 2.6, I think.

Q. Okay.

A. This is the typical postmortem level that we see.

MR. MORIARTY: Okay. Thanks. That's all.

EXAMINATION

BY MR. ERNST:

Q. As the typical postmortem level that you see, you can relate that back; true?

A. Relate that back to what?

MR. MORIARTY: Objection.

MS. DONAHUE: Objection.

BY MR. ERNST:

Q. Relate it back to pre-serum level --

MS. DONAHUE: Objection.

BY MR. ERNST:

Q. -- or pre-death level.

A. No. Again, we've talked about that, and I'd like not to relate that back.

Q. I'm talking about diltiazem.

A. I understand. You have the same problems relating diltiazem back that we have to digoxin or any other drug.

Q. You'd want to refer to the total clinical picture.

A. Absolutely.

MR. ERNST: Thank you. That's all I have.

MR. MORIARTY: That's it.

VIDEO OPERATOR: This concludes the deposition of Dr. Barbieri. The time is 2:52.

MR. MORIARTY: Do you want to read and sign it or skip that?

THE WITNESS: I'll skip it.

MR. MORIARTY: He said he wants to not read and sign.

MR. ERNST: He's waiving signature. That's okay by me.

(Witness excused.)

(The deposition concluded at 2:53 p.m.)

CERTIFICATION

I, DIANNA R. PUGLIESE, a Registered Merit Reporter, Certified Realtime Reporter and Commissioner of Deeds, hereby certify that the foregoing is a true and accurate transcript of the deposition of said witness who was first duly sworn by me on the date and place herein before set forth.

I FURTHER CERTIFY that I am neither attorney nor counsel for, not related to nor employed by any of the parties to the action in which this deposition was taken; and further that I am not a relative or employee of any attorney or counsel employed in this action, nor am I financially interested in this case.

_____

DIANNA R. PUGLIESE
Registered Merit Reporter, Certified Realtime Reporter and Commissioner of Deeds

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